

## REMARKS

The amendments set forth above simply cancel the non-elected claims 9-20, without prejudice to applicants' right to file continuation and/or divisional applications directed to the subject matter of these claims.

The aforementioned Office Action rejected claims 1-8 as unpatentable under 35 USC 103(a) over Hayashi et al., U.S. Patent Application Publication No. 2001/0046081, in view of Whitehead et al., U.S. Patent No. 6,215,920. This rejection is traversed. More specifically, this rejection is traversed on the grounds that (a) neither Hayashi or Whitehead discloses any encapsulated display in which electrophoretic particles are present in a gaseous suspending medium, as required by all the present claims; and (b) the displays in Whitehead which make use of vapor phases are not electrophoretic displays in that they do not comprise electrophoretically-mobile particles present in a suspending fluid.

Claim 1 of the present application is directed to an electrophoretic medium comprising a plurality of capsules, each capsule comprising an internal phase comprising a plurality of electrophoretically mobile particles *in a gaseous suspending medium*, and a capsule wall surrounding the internal phase (emphasis added). Applicants agree with the Examiner that Hayashi describes (for example, in Figures 12A-12D, 13A-13D, 14A-14C and 14F and the associated description) an electrophoretic medium comprising a plurality of capsules, each of which comprises a plurality of electrophoretically mobile particles in a *liquid* suspending medium. However, applicants specifically take issue with the Examiner's statement that "Note that no mention is made of the completeness of the filing of the capsule and some amount of gas would exist in the capsule." As mentioned at Paragraphs [0019] to [0021] of Hayashi and at Paragraph [0028] of the present application, capsules are conventionally produced by forming a dispersion (emulsion) of droplets of one liquid phase (which in the case of electrophoretic capsules comprises the electrophoretic particles and the suspending fluid) in a second immiscible liquid phase, and then forming the capsule walls at the boundaries between the two phases. In such a

process, since the droplets are completely surrounded by the immiscible second liquid phase as the capsule walls are being formed, there should be no possibility of the capsules being less than completely filled, nor of inclusion of gas within the capsules. Neither Hayashi nor any of the numerous E Ink and MIT patents and applications mentioned in Paragraph [0004] of this application discuss completeness of filling of capsules since this is simply not an issue when the capsules are produced by conventional processes.

The Examiner has further stated that "The patent to Whitehead et al. teaches that a liquid vapor phase exists in the closed vessel in an electrophoretic display and use of the same leads to sharp colors and contrast." With respect, although Whitehead certainly discloses several electrophoretic displays, for Example the displays illustrated in his Figures 3, 4B, 5A and 5B, the embodiments of Whitehead's invention which use a vapor-liquid phase transition are not electrophoretic displays because they do not contain any electrically charged particles which are electrophoretically mobile within a suspending fluid.

As noted in the paragraph at column 1, lines 47-63 of Whitehead, the patent relates to a number of different embodiments, including "fourth embodiment [which] controls the TIR phenomenon at a retro-reflective surface by means of a vapour-liquid phase transition." The only drawing which is referred to as using such a transition is Figure 6 (see the Brief Description of Drawings section in columns 1-2 of Whitehead). Figure 6 is described in detail at column 9, line 36 to column 11, line 4 of Whitehead, where it is stated the displays comprises a sheet 50 having a prism-bearing surface 52 and a backing sheet 55 which vacuum seals the region beneath surface 52 to form a compartment having first and second chambers 53, 54. Sheet 55 simply provides a physical and thermal barrier for containment of *liquid* 56 in chamber 54 [emphasis added]. Prismatic surface 52 and surface 63 of lower sheet 55 are coated with thin transparent electrode films (not shown) comprised of a material such as a metal oxide. Voltage sources 58, 59 are controllably electrically connected to the electrodes to resistively heat one or the other of the electrodes and thereby vapourize liquid 56 in the

region adjacent the heated electrode. In the "on" or "white" state of a pixel of the display, as illustrated on the left-hand side of Figure 6 of Whitehead, a portion of liquid 56 is vaporized to form a vapor barrier 57 interposed between surface 52 and liquid 56, so that light 60 incident on surface 52 will undergo total internal reflection because of the large difference in refractive index between the sheet 50 and the vapor 57 (see column 10, lines 27-54 of Whitehead). In the "off" (dark) state of a pixel of the display, as illustrated on the center and right-hand side of Figure 6 of Whitehead, no vapor is present adjacent the surface 52, so that light 61 incident on surface 52 will pass through this surface because the liquid 56 is chosen to have a refractive index close to that of the sheet 50 (see the paragraph bridging columns 10 and 11 of Whitehead).

There is no suggestion in Whitehead that any solid particles are present in the liquid 56, and given the way in which the display operates, as explained above, there is no need for such particles.

Since Hayashi thus discloses an electrophoretic display having charged particles moving through a liquid suspending fluid, while Whitehead discloses a display in which a pure liquid not containing particles is vaporized to cause total internal reflection to occur, there is no logical way to combine Hayashi and Whitehead. *A fortiori*, there is no logical way to combine Hayashi and Whitehead to produce a system having charged particles moving through a gaseous suspending fluid, a feature not disclosed in either reference.


For the foregoing reasons, the 35 USC 103 is unjustified and should be withdrawn.

Since the normal period for responding to the Office Action expired January 20, a Petition for a one-month extension of this period is filed herewith. An Information Disclosure Statement is also being filed herewith; this Information Disclosure Statement comprise both paper and electronic parts, and as explained in the paper part, the fee for the late filing of this Information Disclosure Statement is being paid with the first of the electronic parts thereof.

*Jacobson et al.*  
*Serial No. 10/605,039*  
*Amendment of February 16, 2005*  
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Reconsideration and allowance of all claims remaining in this application  
is respectfully requested.

Respectfully submitted



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